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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,568	12/15/2003	Masatoshi Takeda	L8612.03110	2482

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EXAMINER

SIEFKE, SAMUEL P

ART UNIT	PAPER NUMBER
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1797

MAIL DATE	DELIVERY MODE
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07/01/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/734,568	TAKEDA ET AL.	
	Examiner	Art Unit	
	SAM P. SIEFKE	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-14 and 43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 11-14 and 43 is/are rejected.
- 7) ☒ Claim(s) 6 and 8-10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 3 recites the limitation "said channel" in line 6 of claim 3. There is insufficient antecedent basis for this limitation in the claim. The Applicant deleted the limitation in claim 1 which provided antecedent basis for the limitation in claim 3. Claim 43 provides proper antecedent basis for the "said channel."

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 11-14 and 43 are rejected under 35 U.S.C. 102(b) as being anticipated by Evans (USPN 6,283,440).

Evans discloses a bubble generation mechanism that produces a bubble within the bubble confinement region 28 (microcapsule) with a reaction chamber (housing next to channel 32). The bubble displaces the movable structure (creating a micropump) and alters the configuration of the bias mechanism, thereby producing useful work. The

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first phase involves creating a bubble from a liquid (reaction agent) by a heater (reaction initiation component) positioned on the substrate above the bubble confinement region. The heat forms a thermal vapor bubble, as the bubble expands it performs useful work on the bias mechanism 24. When the heater is turned off, the vapor bubble re-condenses but the previously dissolved gases remain forming a stable gas bubble. The Examiner states the liquid is held in the bubble chamber 28 which is an equivalent to the microcapsule of the instant invention because it is structurally capable of performing the same function, i.e. holding a liquid (figures 2, 3). Evans further states that the gas bubble requires small amounts of energy to keep the bubble the same size over long periods of time or else the gas will slowly diffuse back into the surrounding fluid. The Examiner states that it is inherent that at some time before the device the bubble confinement chamber 28 (microcapsule) comprises a liquid is formed between the sliding block 22 and anchor 26. Referring to figure 6 and 7, one can see that the pump structural material and the reaction initiation means (heater) are stacked one on top of the other (col. 4, lines 37-41). Evans discloses a control section for controlling the operation of said reaction initiation section (turning heater on and off).

Regarding claim 2, an indentation section reaction chamber is formed by a first (quartz) and second (silicone) structured materials (fig. 6-8 and col. 5, lines 23-col.6).

Regarding claim 3, Evans discloses a first intermediate structural material (gasket) and a second intermediate structural material (bonding pads) and an opening which is to serve as said channel (52).

Regarding claim 4, an indentation section (reaction chamber) also included the heater which is located above the bubble confinement chamber 28 formed by a first (quartz) and second (silicone) structured materials (fig. 6-8 and col. 5, lines 23-col.6).

Regarding claim 5, the quartz substrate that covers the bubble confinement chamber is an equivalent to the sheet member of the instant application. The purpose of the sheet member is to cover the first indentation section containing the liquid reagent.

Regarding claim 11, Evans discloses any solid reactant can be placed within the bubble confinement chamber, such that when a complementary class of solutions flows through the chamber, a gas producing reaction ensues that results in the formation of a bubble.

Regarding claim 12, the Examiner states that Evans discloses a liquid that produces an inactive gas because the gas does not react with surrounding fluids.

Regarding claim 13, the reaction agent is a noncontaminating chemical because the reaction agent is confined to the bubble confinement region.

Regarding claim 14, the instant specification states that the reaction agents can be of a solid or liquid. The claim recites a plurality of reaction agents which means more than one. Evans discloses a solid reactant can be reacted with a liquid reactant.

Regarding claim 43 which claims a reaction agent which is housing in a reaction chamber and produces a gas of predetermined pressure. The Examiner states that the bubble is created and increased until the bubble pressure is increased to a predetermined pressure, that which will slide the sliding block 22 out of channel 32.

Claim 43 requires a channel (52) which guides the gas of the predetermined pressure to an outlet (50) from the reaction chamber (fig. 3).

Allowable Subject Matter

Claim 6, 8, 9 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not teach or fairly suggest a first and second liquid reaction reagents residing separately in a housing and reaction initiation component releases the first and second liquid from a separate state to thereby cause the liquid to react with each other.

Response to Arguments

Applicant's arguments filed 5/15/08 have been fully considered but they are not persuasive. As an initial matter claims 7-14 were objected in the Office Action dated 2/15/08 as being an improper multiple dependent claims and were not further treated on the merits. Applicant argues, "The Office action does not propose that Evans discloses this subject matter." This argument is in reference to the claim limitation of a liquid reaction agent being provided within a microcapsule. The Examiner as seen above has provided why the Office Action did not address the claim limitation. The current Action now addresses the claimed subject matter of a liquid reaction agent being provided within a microcapsule and can be seen above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **SAM P. SIEFKE** whose telephone number is (571)272-1262. The examiner can normally be reached on M-F 7:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Jill A. Warden** can be reached on 571-272-1700. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Samuel P Siefke/
Primary Examiner, Art Unit 1797

June 26, 2008